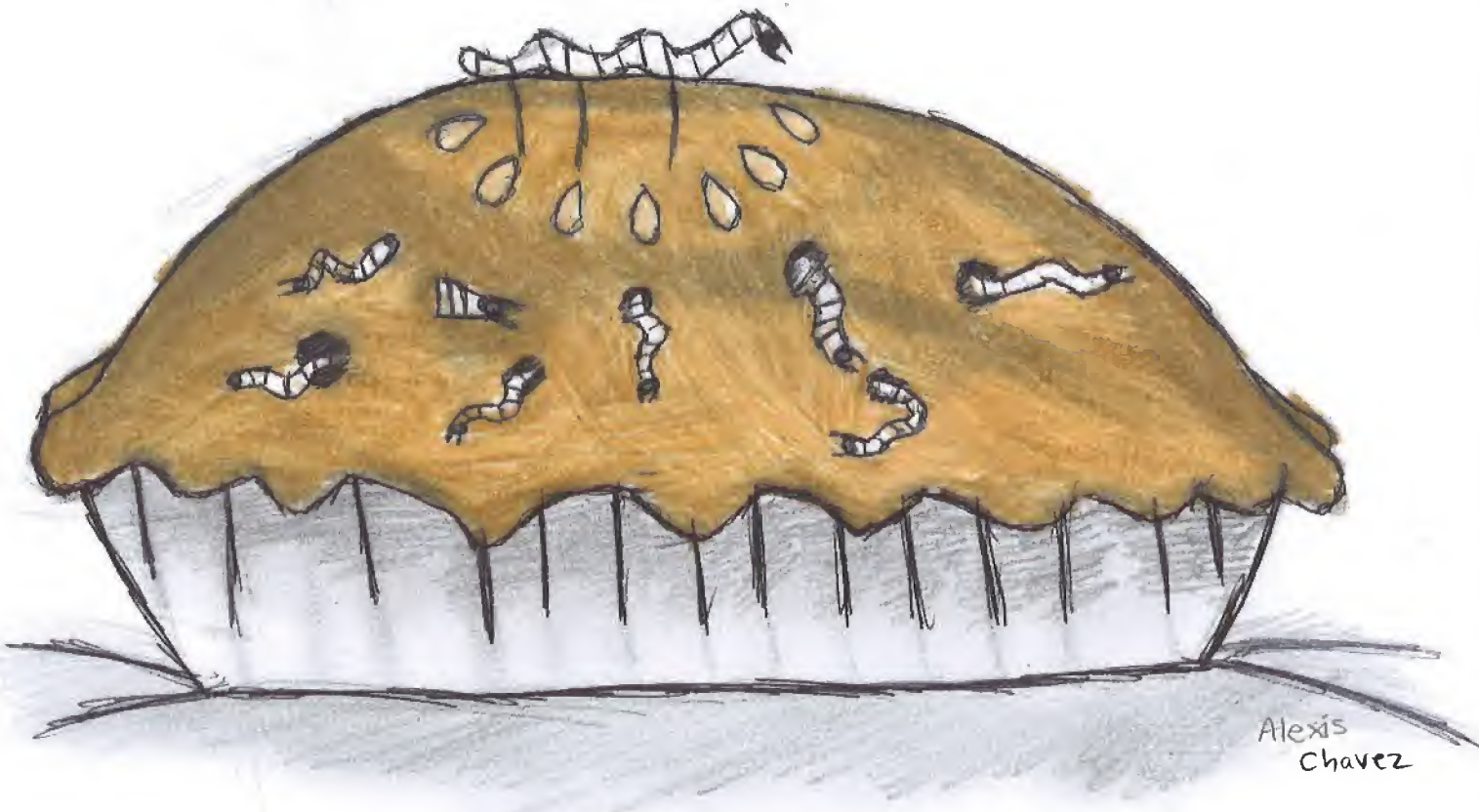


# The Mealworm Cookbook



Recipes and Illustrations by Mrs. Delia Ayala's 6<sup>th</sup> grade  
science students

Curren School, Oxnard CA





This book was written and illustrated by students from Mrs. Delia Ayala's 6<sup>th</sup> grade science classes as part of the California State University Channel Islands Junior Scientist Project, in collaboration with Oxnard School District, the Ventura County STEM Network and the Amgen Foundation.

### **About the Project:**

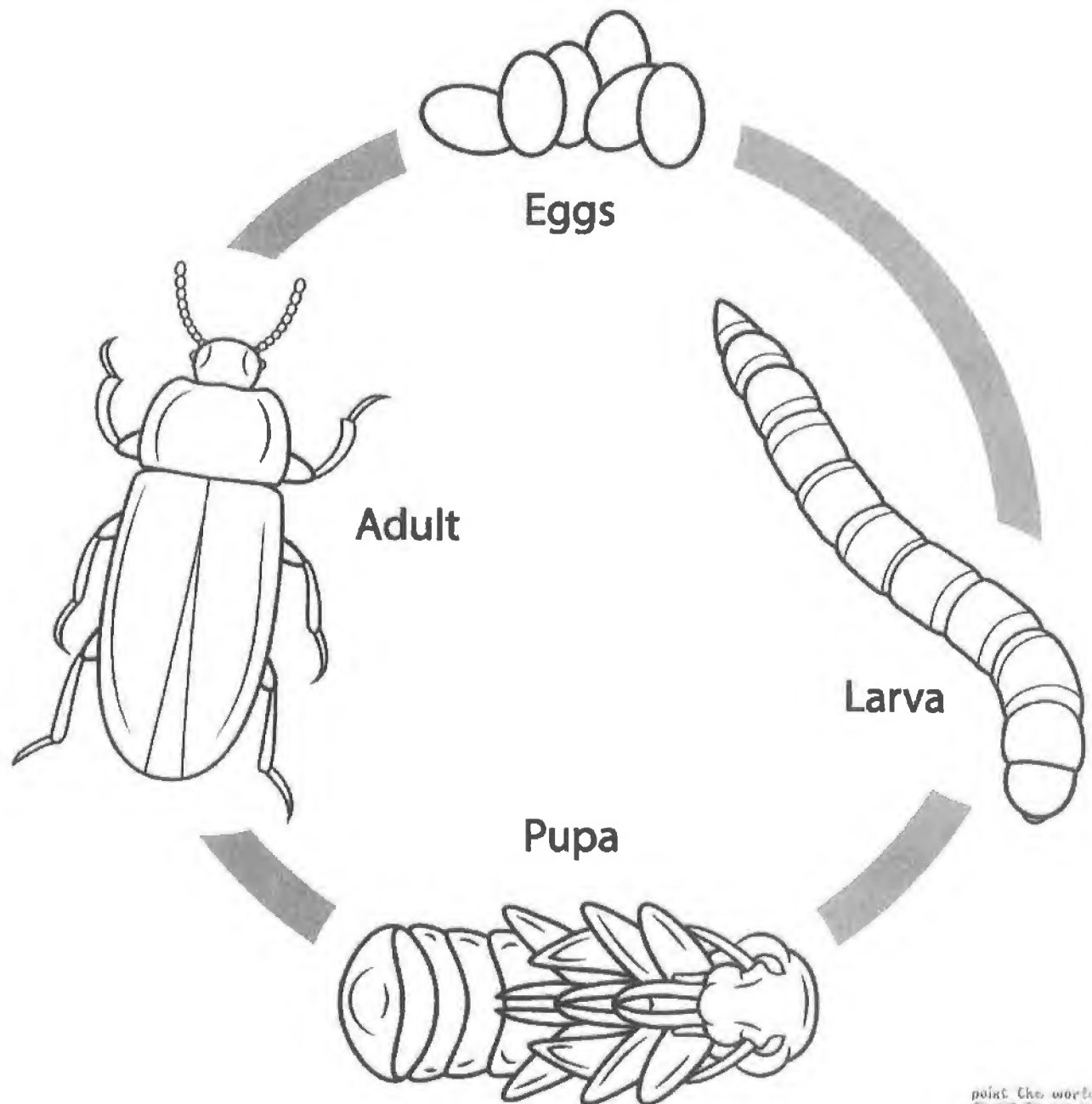
6<sup>th</sup> grade students in Mrs. Ayala's classroom at Curren School learned about edible insects as a sustainable food source by raising mealworms in their classroom. Under the guidance of CSUCI student Angelica Morales-Moraga and Professor Ruben Alarcon, the Curren students asked questions, then designed and conducted experiments with the mealworms. The experiments included:

- Raising mealworms in varying temperatures to see how it would affect the mealworms' growth (related to climate change).
- Testing different water sources (such as pumpkins and grapes) to see how it would affect the mealworms' growth.

As part of the project, students measured and weighed the insects regularly, and recorded their data. At the end of the project, the students analyzed their results and presented their findings. The project also included a mealworm tasting.

A special thank you to Mrs. Delia Ayala; the 6<sup>th</sup> grade science students at Curren School; CSUCI Professor Phil Hampton; CSUCI Professor Ruben Alarcon; CSUCI student Angelica Morales-Moraga; CSUCI; Oxnard School District; Curren School; the Ventura County STEM Network; and the Amgen Foundation for making this project possible.

# Life Cycle of a Mealworm



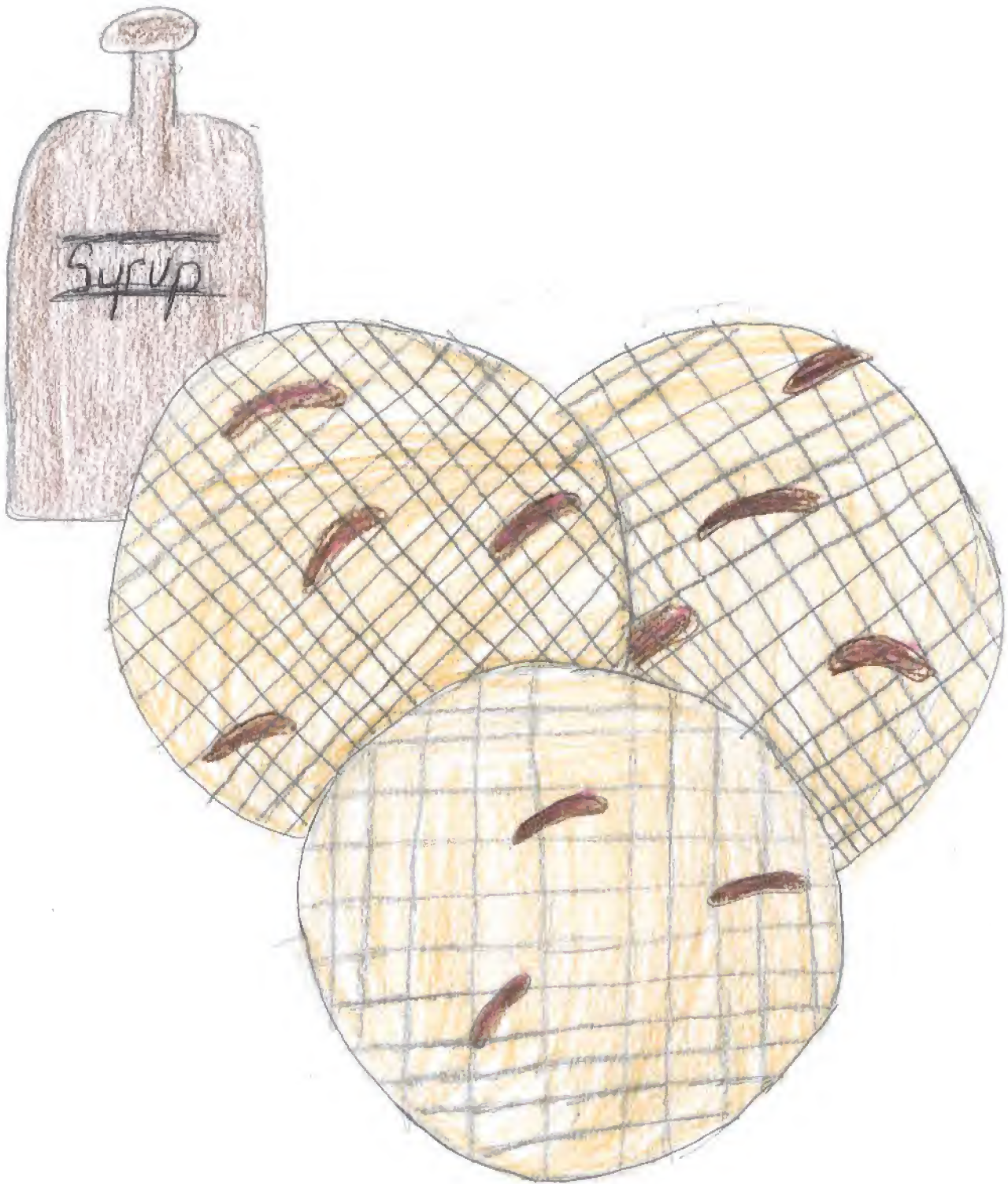
point the world  
**SUPER**  
COLORING



# Breakfast



Xifali  
Ramirez



**RECIPE:** Waffles w/ mealworms

**FROM:** Xitlali Ramirez



**INGREDIENTS:**

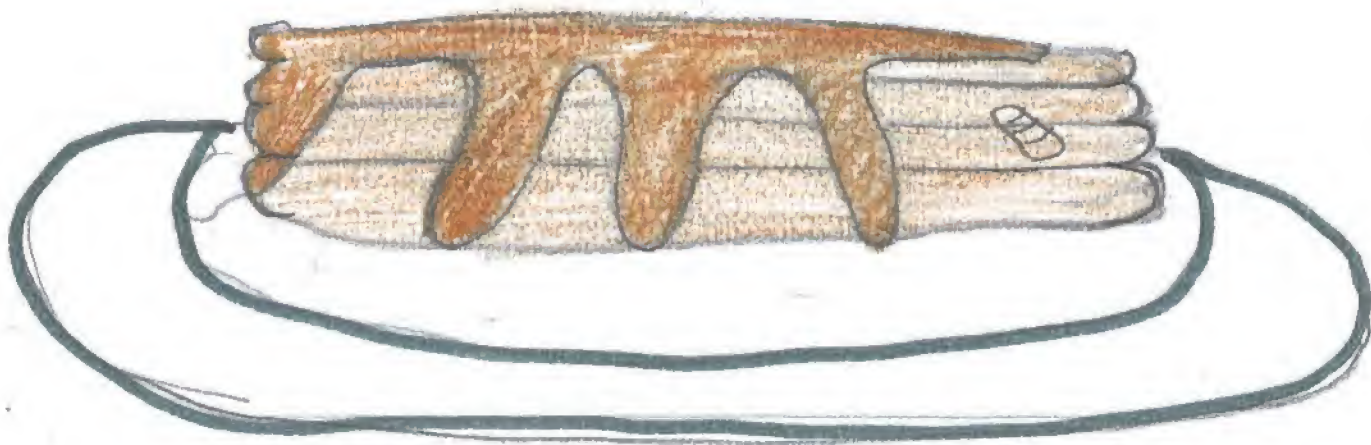
<u>2 eggs</u>	<u>1 tablespoon white sugar</u>
<u>2 cups all-purpose flour</u>	<u>4 teaspoons baking powder</u>
<u><math>1\frac{3}{4}</math> cups of milk</u>	<u><math>\frac{1}{4}</math> teaspoon salt</u>
<u><math>\frac{1}{2}</math> cup vegetable oil</u>	<u><math>\frac{1}{2}</math> teaspoon vanilla extract</u>

**DIRECTIONS:** Preheat the waffle iron.

Beat the eggs in a large bowl with a  
hand beater until it's fluffy. Beat in  
the flour, baking powder, salt and  
vanilla, just until smooth. Spray preheat  
waffle iron with non-stick  
cooking spray. Pour mix onto  
hot waffle iron. Add the mealworms

Cook until it's golden  
brown. Serve hot.







**RECIPE:**

Pancakes

**FROM:**

Toni Simpson



**INGREDIENTS:**

1  $\frac{1}{4}$  cup of water

1  $\frac{1}{4}$  cup flour

2 Table spoon sugar

2 teaspoons baking powder

$\frac{1}{2}$  tsp of salt

1 lbs oil

**DIRECTIONS:**

Sift flour, sugar, baking powder, and salt. Whisk the water and oil together in a small bowl. Make a well in the center of dry ingredients, pour in wet ingredients, stir until blended. Heat a lightly oiled griddle over medium-high heat. Drop batter by large spoonfuls onto griddle and cook until bubbles form and edges are dry flip and repeat.

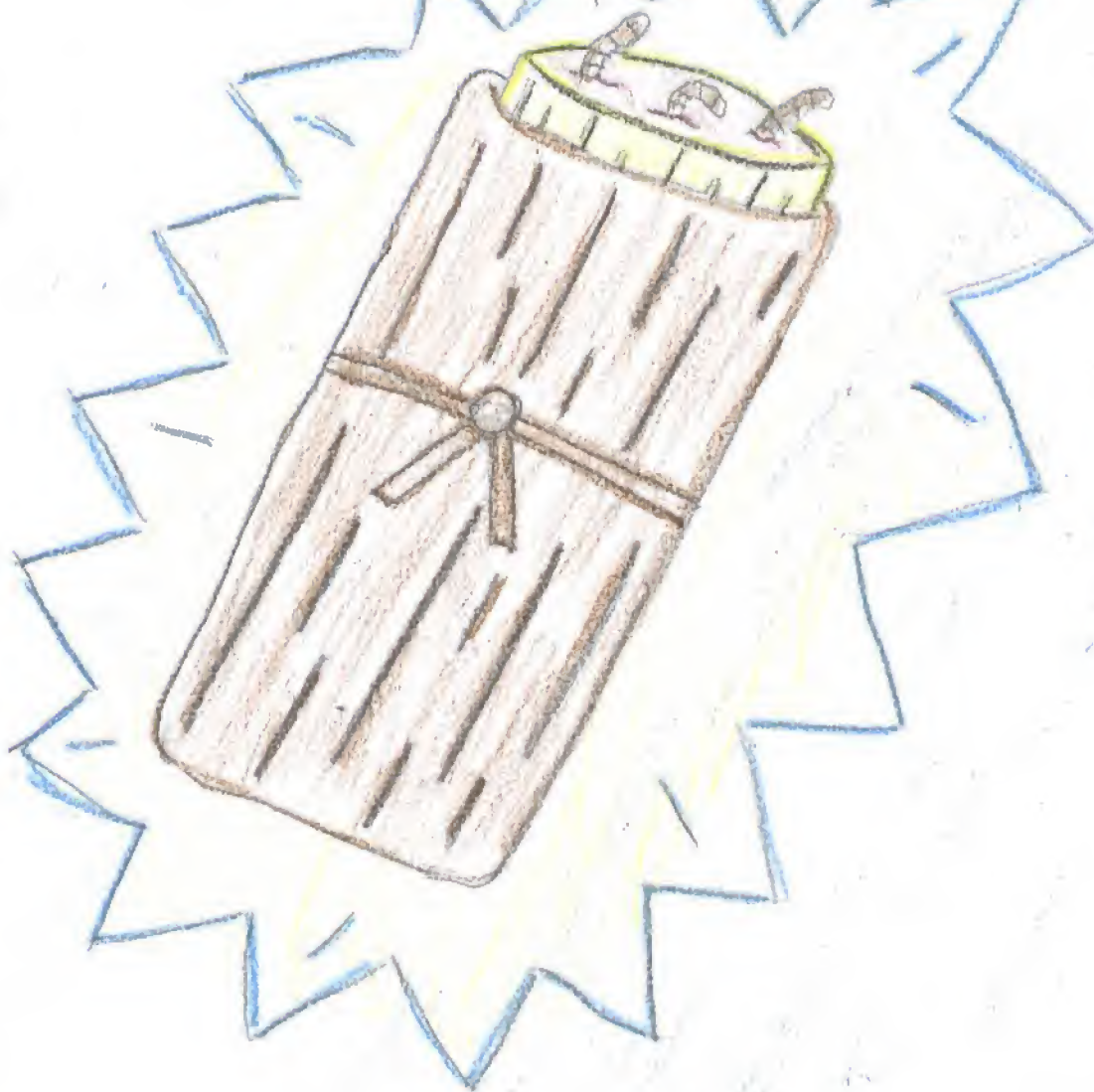


Dinner

Mealworm and Mole



Tamales





**RECIPE:**

Mealworm and Mole  
Tamales

**FROM:**

Melanie Plascencia



**INGREDIENTS:**

2 cups of water

1 cup of Mealworms

6 dozen Corn Husks

10 pounds of dough

1 1/4 cups of Mole

**DIRECTIONS:**

Open the corn husk  
and spread 7.2 pounds of dough  
on it. Then put 1/2 of mealworms  
and some of the mole.

Keep doing this until  
you have all the tamales  
you need. For more  
flavor, you can add

a teaspoon of salt  
to them. Add 2 cups  
of water to large  
pot and preheat your  
oven to  $325^{\circ}$  degrees.  
Close your tamales and  
put them in the pot  
from  $4\frac{1}{2}$  to 6 hours.  
When ready, serve  
and enjoy!





# Tacos dorados con mealworms,

"Your Tacos is served."

Why its Good meat

• No Meat

~~It's not a taco~~

• Good Taste



Made from  
Mexico.



"Best tacos ever"

Only \$1.06

**RECIPE:** Tacos Dorados con mealworms

**FROM:** Chef Emiliano



**INGREDIENTS:**

Oil 1/3-1/2

8-10 Tortillas

cheese 1 1/2

mealworms

2 Roma Tomatoes

1/2 cup Sour cream

1-2 limes

4 cups Lettuce

1/3 cup red onion

**DIRECTIONS:** First Put oil

in a large frying Pan. Fry tacos

until golden and crispy for 1-3

minutes Per side. Second you Put

mealworms in a different Pan

and cook them After that you Put

the mealworms in the crispy tortilla.

Third Put in different spices like

Lettuce, tomato, onion, hot sauce,  
cheese and sour cream.







**RECIPE:** Tacos

**FROM:** Edward Marraffo



**INGREDIENTS:** 1 Pound ground beef (80% lean)

1 tablespoon Chili Powder 1/2 teaspoon Cumin

1/2 teaspoon Salt 1/2 teaspoon Dried Oregano

1/4 teaspoon Garlic Powder 1/4 teaspoon Onion Powder

1/2 cup tomato sauce \_\_\_\_\_

**DIRECTIONS:** Step 1 Heat Taco shells

as directed on box. Step 2 In 10-inch

nonstick skillet cook beef over medium

high heat 5 to 7 minutes stirring frequently

until thoroughly cooked drain. Stir in

water and taco seasoning mix heat to

boiling. Reduce heat simmer uncovered 3 to 4


minutes, stirring frequently, until thickened.



# Taco Worms



TACO  
Worms!

 Delicious!  
1.7K 13.

**RECIPE:** Taco Worms

**FROM:** Aaron Torres



**INGREDIENTS:**

<u>Tortillas</u>	
<sup>1 tsp</sup> <u>Smoked paprika</u>	<u>1 tablespoon Chili Powder</u>
<u>Mealworms</u>	<u>1 pound Ground Beef</u>
<u>1/2 cup tomato sauce</u>	<u>Silantro</u>
<u>Shredded cheese</u>	<u>1/2 teaspoon Salt</u>

**DIRECTIONS:** Put a tortilla on a plate,

Then you place 1 pound of Ground Beef.

After place silantro near the Beef and put

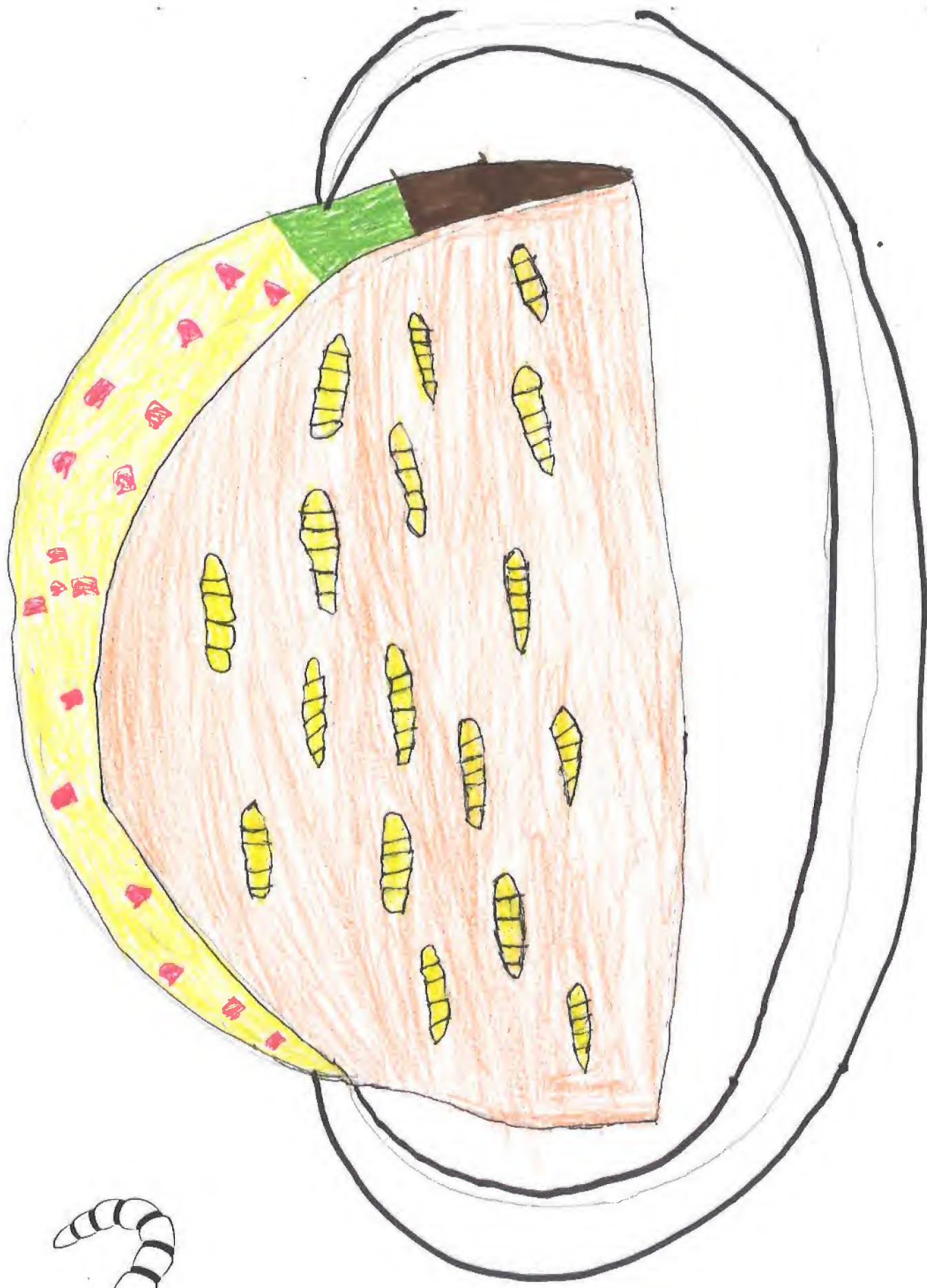
Some Mealworms inside the Beef. Next

you shred some cheese and 1 tsp Smoked

Paprika and 1/2 cup of tomato sauce. And

For the last touches, you add 1 tablespoon of

Chili Powder and 1/2 teaspoon of salt.



Mealworm Taco



**RECIPE:** Mealworm Taco

**FROM:** Jorge Alfaro

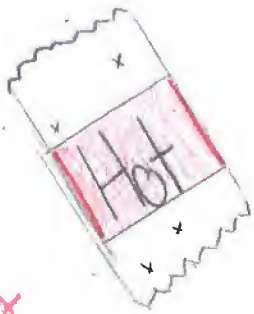


**INGREDIENTS:**

<u>2 teaspoons dried minced</u>	
<u>onion, 1 teaspoon salt,</u>	<u>1 teaspoon chili powder,</u>
<u><math>\frac{1}{2}</math> teaspoon cornstarch, <math>\frac{1}{2}</math></u>	<u>teaspoon ground cumin, <math>\frac{1}{2}</math> teaspoon</u>
<u>red pepper flake, <math>\frac{1}{2}</math> teaspoon</u>	<u>dried minced garlic, <math>\frac{1}{4}</math> teaspoon</u>
<u>dried oregano, 1 pound ground</u>	<u>beef, <math>\frac{1}{2}</math> cup of mealworms.</u>

**DIRECTIONS:** First, get mix minced onions, salt, chili  
powder, cornstarch, cumin, red pepper flakes, cayenne pepper, dried minced  
garlic, and oregano in bowl. Second, heat a large skillet over  
medium-high heat. Crumble ground beef into the hot skillet. Cook  
and stir until the beef is completely browned, 7 to 10 minutes.  
Drain and discard any excess grease. Third, return ground beef  
to heat. Pour seasoning mixture and water over the beef; stir to  
combine. Bring to a simmer and cook until the moisture absorbs into  
the meat, about 5 minutes.

# Meal talk



Meal  
worm



**RECIPE:**

Meal talk

**FROM:**

Isabella vigil



**INGREDIENTS:**

1 medium tomato chopped  
1 pound of ground beef 1 cup shredded Cheddar  
1 cup old El Paso Cheese (4 ounces)  
10 taco shells  
1/2 Shredded lettuce

**DIRECTIONS:**

1) Cook beef in 10-inch skillet over  
medium heat stirring occasionally, until  
brown; drain. 2) Stir Salsa into beef.  
Heat to boiling, stirring constantly; reduce  
heat to medium-low. Cook 5 minutes,  
stirring occasionally. Pour beef  
mixture into large serving bowl.

3) Heat taco shells as directed  
on package. Serve taco shells  
with beef mixture, lettuce, tomato  
and cheese.







Tawormsi.

**RECIPE:** Ta Worms

**FROM:** Valeria Alvarez



**INGREDIENTS:**

<u>1 Pound Lean (at Least 80%)</u>	<u>Taco Shells 1/2 head Lettuce,</u>
<u>Ground Beef 1 cup Old el</u>	<u>Shredded 1 medium tomatoe,</u>
<u>PasoTM Thick n chunky</u>	<u>Shreded (3/4 cup) 1</u>
<u>Salsa 10 Old el Paso TM</u>	<u>cup Shredded cheddar</u>
	<u>Cheese (4 ounces).</u>
	<u>2 cups mealworms</u>

**DIRECTIONS:**

Step 1 Cook Beef in 10 inch  
Skillet over medium heat 8 to 10 minutes, stirring  
occasionally, until Brown; drain. Step 2 Heat taco  
Shells as directed on Package. Serve taco  
Shells with Beef and The cup of mealworms  
Mixture, Lettuce, tomatoe and Cheese.

---

---

Sopes with mealworms ☺



Mealworms





**RECIPE:** Sopes with mealworms

**FROM:** Jamie Padilla



**INGREDIENTS:** 1. 1-1/2 cup of masa

2. 1-1/4 cup of warm water 3. 4 tablespoons of

3. vegetable oil or lard 4. 2 cups of lettuce-

4. (finely shredded) 5. 1/2 cup of

5. mealworms

**DIRECTIONS:** ~~Atta~~ Mix masa harina

and warm water in a medium-size

bow, knead the dough until you have a

uniform texture. If the dough feels dry,

add more water, little by little, spoon by spoon,

until the dough is soft and

manageable, like play dough. It doesn't

have to be sticky. Now, cover the dough

with a wet kitchen towel,  
this will help to keep the  
dough moist. Always keep a  
small bowl of water next to  
your working area to keep your hands  
and dough moisten. Divide the dough  
into 10 pieces of the same size, cover  
with the kitchen towel. Heat the  
griddle over medium-high heat. To  
form the supes, cut the plastic bag  
into 2 squares of about 6-IN each.  
Place one piece of plastic on the  
Tortilla press, then put down one of  
the small balls of dough and cover  
with the other piece of plastic, close  
the tortillera and press down gently  
with the tortilla press handle until



you form a medium size  
thick tortilla. Lift the handle and  
remove the top plastic. Pick up  
the tortilla, holding with the plastic  
at the bottom, gently flip the tortilla  
to onto the palm of your hand.  
A large part of the tortilla will  
cover your hand, (if you don't have  
a Tortilla press, use a glass pie dish  
to press down on the dough.  
Place the tortilla on the hot griddle/  
comal, this is a fast but gentle  
move. Turn the tortilla after a minute,  
don't let it cook longer or the dough  
will dry and crack. Turn again after  
a minute, and the last cooking  
will take about 20-30 seconds



Remove from griddle with the help of a spatula. Cover the tortilla with a dry kitchen towel and allow to cool for about 30-45 seconds, and start forming the border pinching the edges with your fingers.

~~At~~ Now, the tortilla had ~~become~~ become ropes, cover again with the kitchen towel and keep cooking the rest of the ropes.

---

---

---

---

---

---

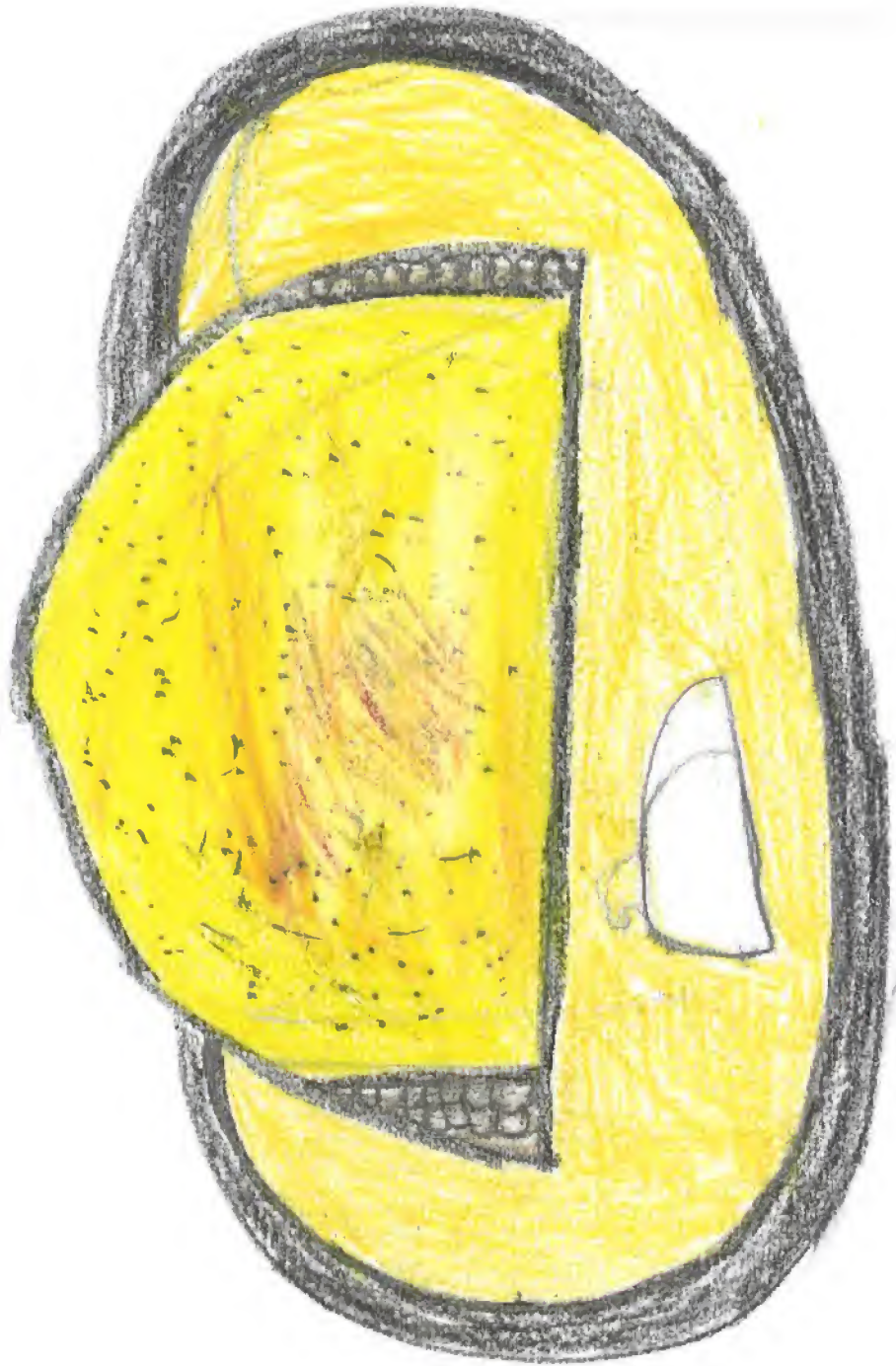
---

---





Wormdilla



**RECIPE:** wormdilla

**FROM:** Melani Garcia



**INGREDIENTS:** PAM Original No-  
4 Flour tortillas Stick Cooking Spray  
(8 inch), 2 Cups Blue cheese dressing,  
Shredded Cheddar or optinal, Meal worms  
Monterey Jack  
Cheese (2 cups = 8 oz)

**DIRECTIONS:** Prepare Meal worms

Sprinkle half one tortilla with 1/4 cup

Cheese. Top with 5 hot tenders and

another 1/4 cup cheese. Fold tortilla in

half over filling. Repeat with remaining

ingredients. Spray large skillet with

cooking spray; heat over medium heat.

Add each quesadilla and cook about 1

minute per side or until tortilla is golden brown

and cheese melts. Cut quesadillas into wedges. serve  
with blue dressing, if desired.



Protein Wrap w/mealworms

\$5.99



Strawberry-Peach

Juice w/reusable  
Straw



mealworms

mealworm



Wrap



**RECIPE:**

Mealworm Wrap

**FROM:**

Crystal Solomon



**INGREDIENTS:**

2 cups of shredded romaine

2 cups of mealworms

1 large tomato, diced

Salt & Pepper

2 tbl. of lime juice

1/2 cup of avocado

**DIRECTIONS:**

Place mealworms in a large bowl and season with salt and pepper.

Remove the skin and pit from the avocado and place in another bowl. Mash the avocado,

then season with salt and pepper. Lay a tortilla

on a work surface and spread 1/4 of the

avocado mixture over the tortilla leaving a 1-inch

border. Layer 1/4 of the lettuce down the center, followed by 1/4 of tomato. Add 3/4 of mealworms



# Crystal

Fold in the 2 sides of the tortilla,  
then roll up like a burrito.



Repeat with the remaining ingredients  
and tortilla.

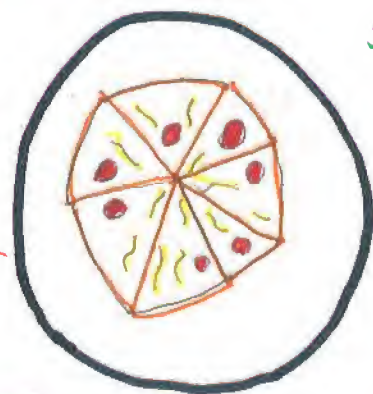
Cut in half before serving.



DonimOS

(805)339-8591

or  
(805)402-6591



Yum!!

Mealworm

Pizza

-3.99\$

New!



**RECIPE:** Mealworm pizza

**FROM:** Miranda Lopez



**INGREDIENTS:** Dough  
Sauce  
Cheese  
meal worms

**DIRECTIONS:** The first step is  
making dough. In a large bowl pour  
yeast and sugar in water and leave it  
for 5 minutes. Now add oil and salt  
and stir in flour a cup at a time  
until the dough forms. Now you can  
put the dough on a cutting board or  
a surface and roll it until its flat.

Miranda Lopez

The next step is to put the  
dough in the oven and bake  
at 400° for 25-30 minutes.

When it's done baking





# Mealworm Pizza



**RECIPE:**

Mealworm Pizza

**FROM:**

Thimena



**INGREDIENTS:**

<u>2 1/2 Cups warm water</u>	<u>7 Cups all-Purpose flour, plus more for dusting</u>
<u>1 teaspoon Sugar</u>	<u>6 tablespoons extra Virgin Olive oil, Plus more</u>
<u>2 teaspoon active dry Yeast</u>	<u>1 1/2 teaspoon kosher salt</u>
	<u>1/4 Cup Semolina flour</u>

Mealworms  
**DIRECTIONS:**

Step 1 In a large  
mixg bowl, combine flours and  
salt. Step 2 In a small mixing  
bowl, stir together 200 grams (a  
little less than 1 cup) lukewarm  
tap water, the yeast and the olive  
oil, then pour it into flour mixture.  
Knead with your hands until well

# Jhimena

Combined, approximately 3  
minutes, then let the mixture  
rest for 15 minutes Step  
3 Knead rested dough for 3  
minutes. Cut into 2 equal  
pieces and shape





Pizza



Worm





**RECIPE:** Pizza Worm

**FROM:** Adriana Fernandez Martinez



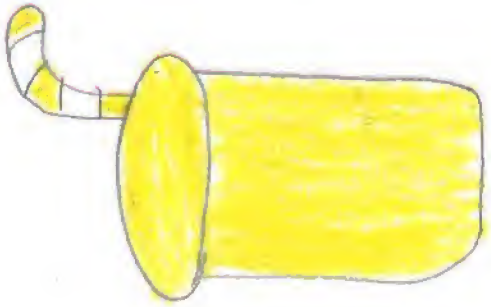
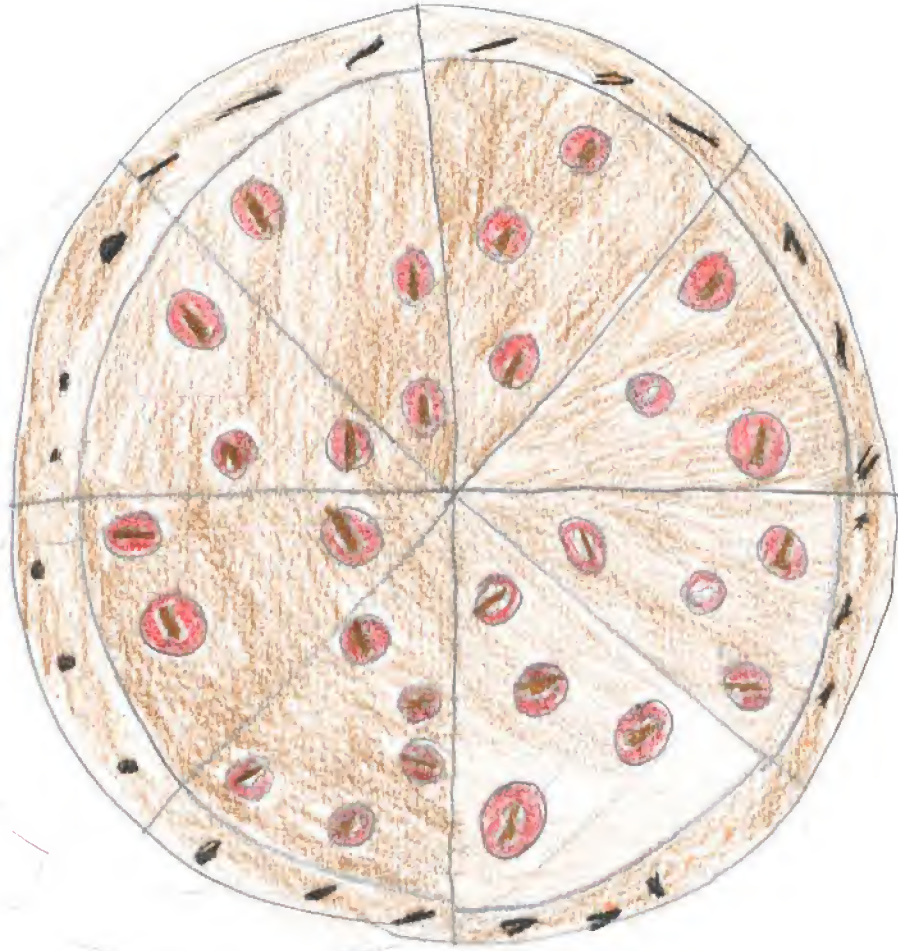
**INGREDIENTS:**

<u>1 <sup>(355ml)</sup>/<sub>2</sub> cups of warm water</u>	<u>3 3/4 cups (490g) bread flour</u>
<u>water (105°F-115°F)</u>	<u>2 Tbsp olive oil (omit if cooking pizza in a wood-fire pizza oven)</u>
<u>1 package of active dry yeast</u>	<u>2 teaspoon salt</u>
<u>(2 1/4 teaspoons) of yeast</u>	<u>1 teaspoon sugar</u>
	<u>2 1/2 cups of mealworm</u>

**DIRECTIONS:** First, Preheat the oven to 375  
degrees F (190 Degrees C). Second, Place the pizza  
halves cuts side up onto a baking sheet. Spoon  
some of the pizza sauce onto each one. Top with  
mozzarella cheese and pepperoni slices. Last  
bake for 10 min in the preheated oven, or until  
the cheese is melted and browned on the edges.

---

# Worm Pizza



lemonade

**RECIPE:** Pizza Mealworm

**FROM:** Alejandro Zamora



**INGREDIENTS:** 1 oz Black Garlic

1 pinch Chopped Parsley 1 oz Olive Tapenade

2 TSP Grated Parmesan cheese 4 drops of Texas olive oil

1 tsp Puff pastry 1/2 TBSP Goat Cheese

1 tsp ground roasted mealworms 1 pinch of Mealworms

**DIRECTIONS:** You will need 1 pinch

of Chopped parsley, 2 TSP of Grated  
Parmesan Cheese, 1 tsp puff pastry,

1 TSP of ground roasted mealworms,

1 oz Black Garlic and Olive Tapenade,

4 drops of Texas Olive oil, 1/2 TBSP

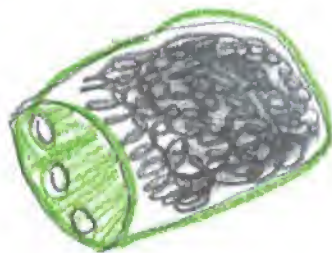
Goat Cheese, 3 in Texas Olives cut half

and at last 1 pinch of mealworms.



# MEAL WORM

## AFREDO





**RECIPE:** Mealworm Alfredo

**FROM:** Alexa Gomez



**INGREDIENTS:** 1 (17.6-ounce) Sams

choice italia fusilloni pasta. 1 table

spoon, olive oil, 2 boneless chicken

breasts. 3 table spoons unsalted

butter, black pepper, 3 garlic cloves, minced,  
2 1/2 tablespoons all-purpose flour.

**DIRECTIONS:** Get a large pot of

lightly salted water to a boil. Add  
fettuccini and cook for 8-10 minutes.

Melt 2 tablespoons butter in large  
skillet over medium heat. Then in a

large saucepan combine ricotta  
cheese, cream, salt, Parmesan cheese and  
remaining butter. Heat chicken, and

then add pepper. Then stir  
alfredo sauce in the chicken.

Then add 1 cup of fettuccine.

Also then you add 2 cups of  
mealworms. Last you sprinkle cheese  
and enjoy your Mealworm Alfredo.



# Mealworm



Salad Carrots

Tomatoes

← Lettuce

← mealworms



**RECIPE:** Mealworm Salad

**FROM:** Darlene Leon



**INGREDIENTS:**

Lettuce

Tomatoes

Carrots

Mealworms

**DIRECTIONS:** Wash vegetables. Cut

lettuce, tomatoes and carrots then add the

vegetables to your bowl. You can add as many

vegetables as you want. Put mealworms

in a plastic bag and put them in the freezer

for about 15 minutes (this will kill the mealworms).

Then spread the mealworms evenly on a

non stick cookie sheet (if you are worried that the



mealworms are going to stick then you can  
lightly grease the sheet). Roast them in  
the Oven for 10-15 minutes on 90: until they  
light and crispy. Be careful mealworms can burn easily.  
Take mealworms off the oven and spread them on a  
new baking sheet till they cool down then add them to your  
Salad.





# Mealworm Soup



**RECIPE:** Mealworm Soup

**FROM:** Isabella Chavez



**INGREDIENTS:** Olive oil 2 Tbsp

Mealworm's 60

peper 1/4

Carrots 10

Onions 1

Celery 7

Tomatoes 2

Potatoes 6

Salt 1/2

**DIRECTIONS:** Heat olive oil in a pot

then add onions, carrots, celery and

tomatoes. Then boil it for 4 minutes

after add you're mealworms. After

you have put your soup in you're

bowl add salt and go ahead and

eat you're mealworm soup.



# Murito





**RECIPE:** Murito

**FROM:** Fernando Ambriz



**INGREDIENTS:** a comal

<sup>15oz</sup>  
7 cups of masa bowl

1/2 cup of water

1 pound of mealworms

1/4 bowl / spoon of salt

**DIRECTIONS:** First you have to get

masa and then you pour it into a bowl.

Then you stir with your hands then you turn

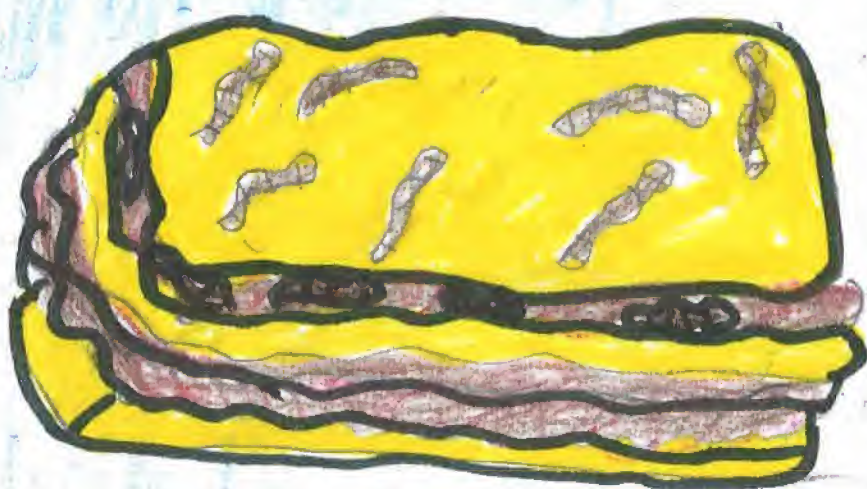
on the stove with a comal. Then, you make

a ball of masa and you form it with

your hands. Then you put it into the comal

then you warm up the mealworms then

you make the murito.



WORMSAGNA

**RECIPE:** Mealworm Lasagna

**FROM:** Diego Godinez



**INGREDIENTS:**  $\frac{3}{4}$  pounds of tomato paste

15 lasagna noodles

1 pound of ground beef

$4\frac{3}{4}$  cups of grated Mozzarella cheese

Dry mealworms

**DIRECTIONS:** Cook Pasta

on boiling water. Drain the  
pasta when it is done.

Cook ground beef. Stir  
the tomato paste with the  
ground beef. Layer the pasta  
ground beef and mealworms.

Layer it 3 times.



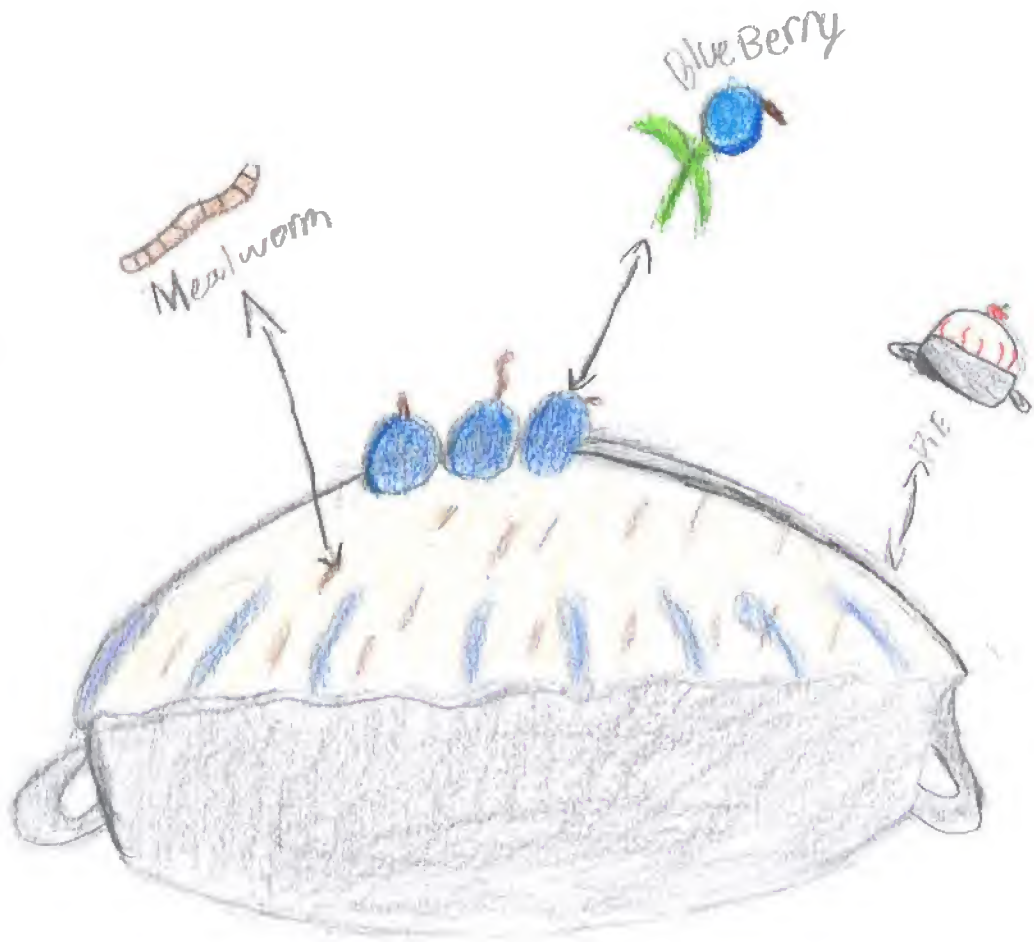
Put the lasagna in your  
oven at 375°F for  
45 minutes. Then take  
out the lasagna and sprinkle  
mealworms on the top  
and enjoy.





# Dessert

Pedro  
Cruz



Mealworm pie



**RECIPE:** Mealworm Pie

**FROM:** Pedro Cruz



**INGREDIENTS:**

Dough, blueberry's

blueberry Jam

mealworms, and a

pan

**DIRECTIONS:** First get the pan and

fill the bottom of the pan with dough.

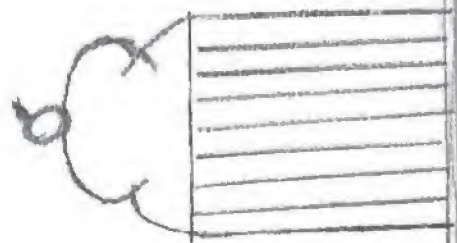
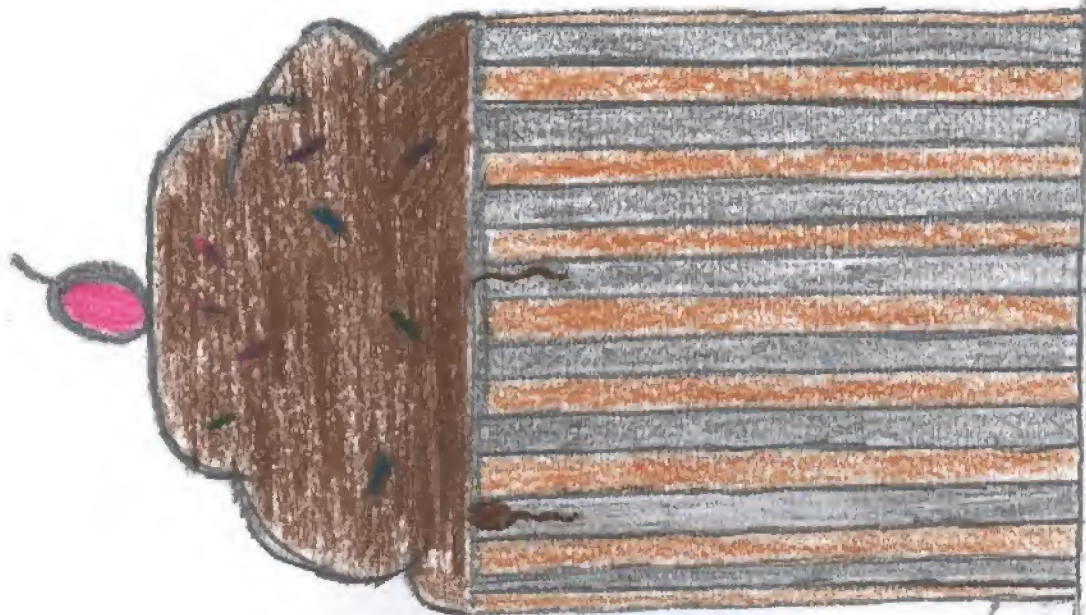
Then fill it with Jam. Next cover the

top with dough and bake it on

the oven. Next dising it with

blue berry's and your done





Medworth Ice Cream

**RECIPE:** Mealworm Ice Cream

**FROM:** Rigoberto Carballo



**INGREDIENTS:**

- Cup holder
- Sugar / milk / cream mixture (2 cups)
- Whipped cream (1 cup)
- Vanilla Extract (2 1/2)
- Fudge (chocolate)
- Ice cream mixture
- Salt (2 teaspoons)
- Almond milk

**DIRECTIONS:**

Stir sugar, and rest  
of the ingredients. Heat until mix is hot.  
Transfer mixture to measuring cup. Stir in  
Vanilla Extract and chill mix thoroughly. Pour cold  
Ice cream mix into ice cream maker. When  
ice cream is softly frozen, serve immediately  
or place plastic wrap to ripen 2-3 hours.





Crepe worm!



**RECIPE:** Crepe worm

**FROM:** Ana Valeria Reveles



**INGREDIENTS:**

1 cup all Purpose flour

1 tablespoon sugar

1/2 teaspoon ground

cinnamon

1 1/2 cups milk

2 eggs

1 tablespoon butter

2 cups sliced Strawberries

2 firm bananas, sliced

**DIRECTIONS:** first step in a mixing bowl

combine flour, sugar, cinnamon, milk and eggs

mix well. cover and refrigerate for 1 hour

Second step melt 1 teaspoon of butter. stir

batter. Pour about 2 tablespoons into the center

of skillet cook 15-20 seconds long or remove

to a wire rack Third step spread 2 rounded

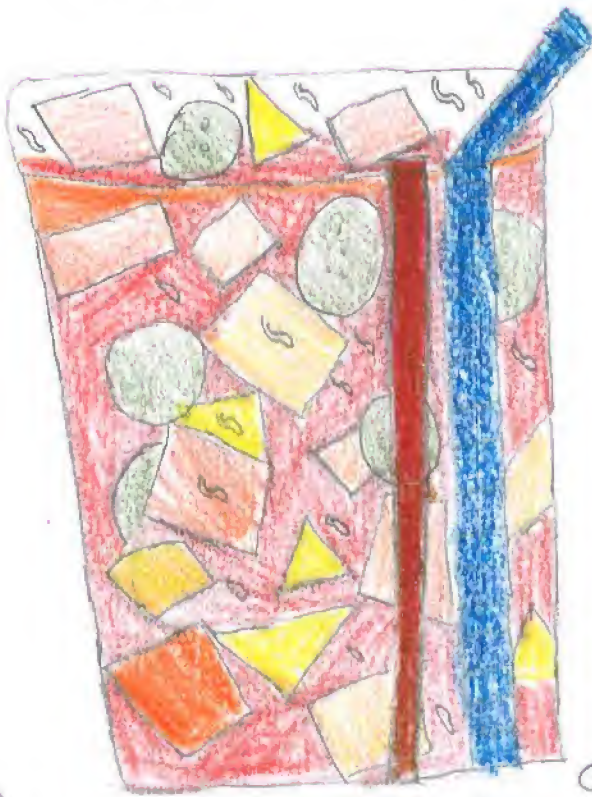
tablespoons on each crepe. Roll up combine topping

Bona Petit!!



# Beverages

# Meal Worm Neda



**RECIPE:** Mealworm Neadá

**FROM:** Annette G. Morelos



**INGREDIENTS:** 2 cups mangoes-frozen  
1 1/2 cups mango nectar 2 cups of ice cubes  
1 mango, peeled and diced 1 lime  
4 tablespoons chamoy 2 teaspoons tajín  
4 teaspoons mealworms

**DIRECTIONS:** 1. Place frozen mango,  
mango nectar, and ice into a blender  
and blend until smooth.

2. Juice half of a lime.

3. Add 1-2 tablespoons of chamoy.

4. Add 1 teaspoon of tajín.

5. Add a tamarindo stick

6. Now add extra topping (by choice)



Italia Alvarik



**RECIPE:** Strawberry Milkshake,

**FROM:** Italia Alvarez



**INGREDIENTS:**

$\frac{1}{3}$  cup of milk

$\frac{1}{2}$  cups of ice cream Mix-ins (fruit)

$\frac{1}{4}$  cups of blended A blender

Mealworms 1 tablespoon of

Strawberry preserve

**DIRECTIONS:** Combine the  
ingredients. Pour the milk first.

If the ice cream is hard before  
you scoop it, then add more

milk.  $\frac{1}{2}$  cup of frozen strawberries.

Pour 1 tablespoon of strawberry

preserves. Add the rest of your

adding. Blend it all. Enjoy!